4th-INCC

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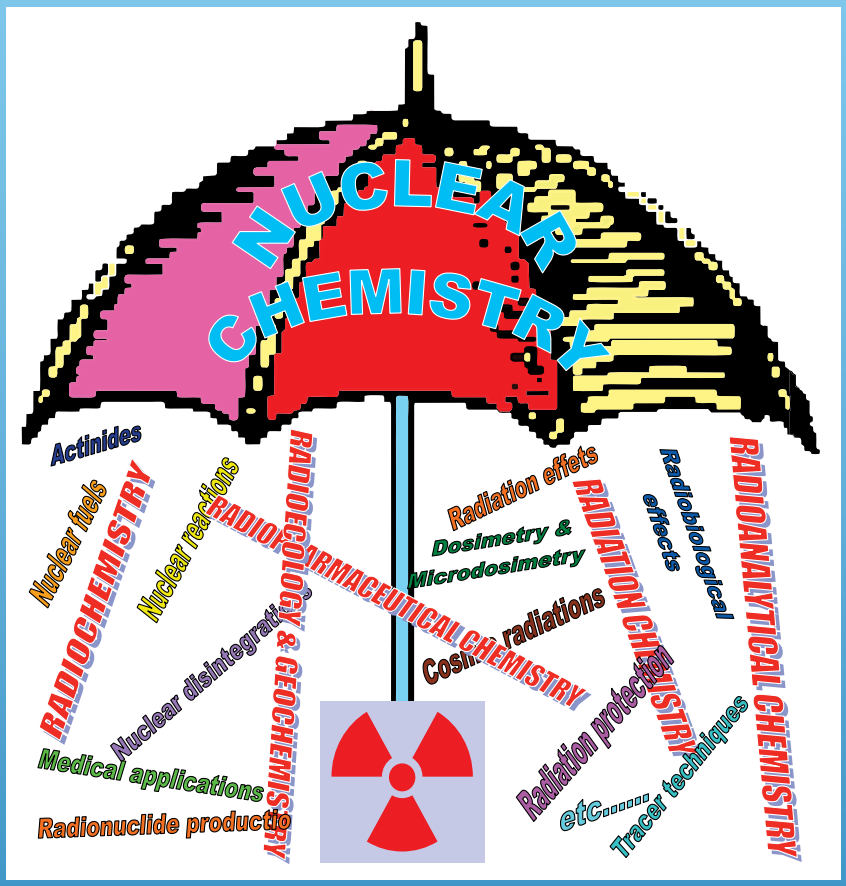

Program
Abstract Book

Edited by

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SUMMARY

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POSTER SESSION 1 - SEP 16 | Tuesday

EDUCATION IN NUCLEAR CHEMISTRY

NUCLEAR AND RADIOCHEMISTRY

NUCLEAR AND RELATED TECHNIQUES

RADIATION CHEMISTRY

RADIOECOLOGICAL AND GEOCHEMISTRY

EFFECT OF γ-IRRADIATION ON RADICAL SCAVENGING, REDUCING POWER AND LIPID PEROXIDATION INHIBITION PROPERTIES OF HYDROALCOHOLIC EXTRACTS FROM *MALVA NEGLECTA*

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Radiation processing technology has been used to improve food security, safety and quality. However there are a few reports in the literature on the effect of irradiation on bioactivity of herbs and medicinal plants[1]. Hence, the present work was undertaken to investigate the dose-response effects of gamma irradiation on free radical scavenging, reducing power and lipid peroxidation inhibition properties of hydroalcoholic extracts prepared from wild *Malva neglecta* Wallr. In the north-eastern of Portugal, this annual herbaceous plant is traditionally eaten raw as leafy vegetable or prepared in herbal beverages due to its disinfectant and anti-inflammatory properties[2]. Thus, dried *M. neglecta* samples were exposed to 0 (control), 1, 5 and 10 kGy of γ-rays in a ^{60}Co experimental chamber. After irradiation, processed samples were extracted using methanol:water (80:20 v/v) and the radicals scavenging activity evaluated through the 2,2-diphenyl-1-picrylhydrazyl (DPPH) free radicals assay, the reducing power by the ferricyanide/Prussian blue assay, and the lipid peroxidation inhibition by β-carotene/linoleate and thiobarbituric acid reactive substances (TBARS) assays. The obtained results suggest that the different irradiation doses affect the extracts bioactivity. In general, the free radicals scavenging activity and the reduction power decreased in irradiated samples (except for 5 kGy in the DPPH assay) compared with the non-irradiated control. On the other hand, the lipid peroxidation inhibition was improved by the irradiation treatment (except for 1 kGy in the TBARS assay). Both β-carotene/linoleate and TBARS assays showed low EC_{50} values (corresponding to a high lipid peroxidation inhibition), while the DPPH assay demonstrated the highest ones (corresponding to a low free radicals scavenging effect). The results herein reported support the use of gamma-irradiation as an effective technology to maintain or improve the lipid peroxidation inhibition properties of hydroalcoholic extracts of *M. neglecta*, and their traditional use in folk medicine.

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REFERENCES

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2) A. M. Carvalho, Biblioteca de Ciências nº 35 (2010).